

POLYAKOVA, A.L.

"Mechanical waves" [in English] by R.B.Lindsay.
A.L.Poliakova. Akust. zhur. 8 no.2:250 '62.
(Waves) (Lindsay, R.B.)

Reviewed by
(MIRA 15:8)

POLYAKOVA, A. L.

"Finite perturbations in relaxing media"

report submitted for the 4th Intl. Congress of Acoustics,
Copenhagen, Denmark, 21-28 Aug 1962.

Acoustical Inst. of the Acad. of Sci. U.S.S.R., Moscow.

35262

S/046/62/008/001/011/018
B125/B102

24.1200 (1144, 1147, 1327)

AUTHORS: Polyakova, A. L., Soluyan, S. I., Khokhlov, R. V.

TITLE: Propagation of finite interferences in a relaxing medium

PERIODICAL: Akusticheskiy zhurnal, v. 8, no. 1, 1962, 107 - 112

TEXT: The generalized equations of gas dynamics for relaxing media derived for steady state flows are valid in the case of small Mach numbers and low energy dispersion in the medium. Motion in relaxing media is completely described by the continuity equation, the equation of state $p = p(\rho, S, \xi)$ (1) and the reaction equation $d\xi/dt = -(\xi - \xi_0)/\tau$

where p denotes the pressure, ρ the density, S the entropy, τ the relaxation time, ξ a parameter which characterizes the internal state of the substance and ξ_0 the equilibrium value of ξ . The values of v/c ,

$(\rho - \rho_0)/\rho_0$ and $(\xi - \xi_0)/\xi_0$ (3) and $m = (c_\infty^2 - c_0^2)/c_0^2$ are in the order of μ since the studies are limited to media with a small velocity of sound dispersion. The present problem can be treated either in Euler or

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Lagrange's variables. The system of equations consisting of

$$\frac{dp}{dt} - \left[c_0^2 + \left(\frac{\partial^2 p}{\partial p^2} \right)_{\xi} p' \right] \frac{dp}{dt} + \frac{1}{\tau} \left[p - p_0 - c_0^2 p' - \frac{1}{2} \left(\frac{\partial^2 p}{\partial p^2} \right)_{\xi} p'^2 \right] = 0 \quad (8)$$

and the continuity equation $q = q_0 (\partial u / \partial x)$ (10), $(\partial v / \partial t) + (1/q_0) (\partial p / \partial a) = 0$ (11) describes the propagation of interferences of finite amplitudes in a relaxing medium. After various substitutions the system is reduced to equation

$$\mu \frac{\partial v}{\partial z} - \frac{e}{c_0^2} v \frac{\partial v}{\partial y} - \frac{m\tau}{2c_0} \frac{\partial^2 v}{\partial y^2} + \tau \frac{\partial}{\partial y} \left(\mu \frac{\partial v}{\partial z} - \frac{e}{c_0^2} v \frac{\partial v}{\partial y} \right) = 0. \quad (14).$$

Its general form cannot be integrated. The coordinate of a fixed particle belonging to the medium in equilibrium is used as a Lagrange coordinate a . In Euler's coordinates the pressure can be eliminated and the continuity equation and equation of motion in a second approximation read as follows:

$$\mu \frac{\partial v}{\partial z} - \frac{1}{c_0} \left(1 + \frac{p'}{p_0} \right) \frac{\partial v}{\partial y} + \frac{1}{p_0} \left(1 - \frac{v}{c_0} \right) \frac{\partial p'}{\partial y} = 0, \quad (15)$$

$$\mu \frac{\partial p'}{\partial z} + \frac{p_0}{c_0^2} \left(1 - \frac{v}{c_0} \right) \frac{\partial v}{\partial y} - \frac{1}{c_0} \left[1 - \frac{p'}{p_0} + \frac{2p_0}{c_0^2} \left(\frac{\partial^2 p}{\partial p^2} \right)_{\xi} \frac{p'}{p_0} \right] \frac{\partial p'}{\partial y} = \frac{B\tau}{c_0^2} \frac{\partial^2 \xi}{\partial y^2} \quad (16),$$

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suitable substitutions change it to

$$\mu \frac{\partial v}{\partial z} - \frac{\varepsilon}{c_0^2} v \frac{\partial v}{\partial y} = - \frac{B\tau}{2\rho_0 c_0^2} \frac{\partial^2 \xi}{\partial y^2}, \quad (20).$$

The relation $v/c_0 = \varphi'/\varphi_0$ of the linear acoustics is extended by quadratic terms and terms governed by internal degrees of freedom which are proportional to $\partial \xi / \partial y$. (20) and the reaction equation $\tau(d\xi/dy) + \xi = -m\varphi_0 c_0 v/B$ (21) written in the new coordinates $z = \mu x$, $y = t - x/c_0$ completely describe the propagation of interferences of finite amplitudes in a relaxing medium. $v(y)$ is shown in Fig. 1: a) the case $k \gg 1$ corresponds to relatively weak nonlinear effects. b) At $k > 1$ the shape of the shock wave becomes unsymmetrically with respect to the center level, c) at $k > 1$ $v(y)$ becomes theoretically ambiguous; this corresponds to a nonsteady real function. The compression jump can be described with a parameter which is proportional to the shear viscosity parameter δ by $\varphi \frac{d^2 v}{dy^2} + (v + \frac{mc_0}{2\varepsilon} + \frac{\delta}{\tau}) \frac{dv}{dy} + \frac{\varepsilon}{2\tau} (v^2 - v_0^2)$ (25). Substituting

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$w = dv/dy$ gives for the trajectories on the phase plane

$\frac{dw}{dv} = -\frac{1}{\delta} \left(v + \frac{mc}{2\epsilon} + \frac{\delta}{\tau} \right) w + \frac{\epsilon}{2\tau} (v^2 - v_0^2)$. A. V. Gaponov is thanked for the suggestion. There are 2 figures and 6 references: 5 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: J. S. Mendousse. Nonlinear dissipative distortion of progressive sound waves at moderate amplitude, J. Acoust. Soc. America, 1953, 25, 1, 51 - 54.

ASSOCIATION: Akusticheskiy institut AN SSSR Moskva (Acoustics Institute of the AS USSR Moscow); Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 17, 1961

Card 4/5

POLYAKOVA, A.L.

"Physical acoustics and the properties of solids" by W.P.Mason.
Reviewed by A.L.Poliakova. Akust.zhur. 6 no.1:142-143 '60.

(Sound—Transmission)
(Mason, W.P.)

(MIRA 14:5)

POLYAKOVA, A.L.

Plane sound wave of finite amplitude in a moving medium. Dokl. AN
SSSR 137 no.6:1347-1349 Ap '61. (MIRA 14:4)

1. Akusticheskiy institut AN SSSR. Predstavleno akademikom N.N.
Andreyevym.

(Sound waves)

10.6121 also 1327, 1063, 1593

23850
S/020/61/137/006/009/020
B104/B201

AUTHOR: Polyakova, A. L.

TITLE: Plane sound wave of finite amplitude in a moving medium .

PERIODICAL: Doklady Akademii nauk SSSR, v. 137, no. 6, 1961, 1347-1349

TEXT: The Riemann solution, which describes the propagation of a plane sound wave of finite amplitude, can be extended to a moving medium. Three cases are examined here. In the first one, the observer is assumed to be situated in the point $x = 0$, in an immobile position with respect to the sound wave. The medium is allowed to move at a constant velocity V in the direction of the x -axis. Proceeding from the Riemann solution $x' = t\{v \pm c(v)\} + f(v)$ (1), it is shown that the existence of a flow leads to a drift of sound waves in the direction of the wind.

$c(v) = c_0 \pm \frac{\gamma - 1}{2} v$ (2) is obtained from the equation of state; therefrom, the function $v = F(t - x/(V \pm c_0 + \epsilon v))$ is obtained for the particle velocity; $\epsilon = (\gamma + 1)/2$. The author then deals with solutions of the problem in second approximation. If $V < c_0$, the relation $v/(V \pm c_0)$ has

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Plane sound wave of ...

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the significance of the Mach number in the moving medium. If the sound propagates against the flow direction and V is almost equal to c_0 , then $v \ll c_0$, but $v/(V - c_0)$ is no small quantity. When assuming that at $x = 0$ $v = A \sin \omega_0 t$, then the solution in first approximation will have the form $v_1 = A \sin(\omega_0 t - kx)$, where $k = \omega_0/(V \pm c_0)$. The second approximation reads:

$$v_2 = \frac{A^2 \omega_0^2}{2(V \pm c_0)^2} x \sin 2(\omega_0 t - kx). \quad (5).$$

As may be seen, with $V \rightarrow c_0$ this solution becomes unusable for arbitrarily small x . The distance to this point, at which the sound waves are converted into periodic shock waves, reads: $x_t = (V \pm c_0)^2 / \epsilon A \omega_0$. When taking the viscosity into account, one must put for the Reynolds number in a moving medium: $Re' = c_0 Re / (V \pm c_0)$. In the second case under consideration, the sound source is assumed to emit the frequency ω_0 in the coordinate system connected with it, and to move with velocity V in the direction of the positive x -axis. The Riemann solution then has the form:

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$$v = A \sin \omega_0 \left(t - \frac{x - Vt}{\pm c_0 - V + \epsilon v} \right). \quad (7).$$

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Plane sound wave of ...

The upper sign corresponds to an approach of the source to the observer, the lower one to a withdrawal. In linear approximation one obtains here the usual Doppler effect, and in second approximation the relation:

$$v_2 = \frac{\omega_0 A^2}{(V \mp c_0)^2} (x - Vt) \sin 2(\omega t - kx). \quad (8).$$

As may be seen, the signal received depends largely on the distance from the sound source. The following holds when taking viscosity into account: At a large distance ($> (V - c_0)^2 / 2\omega_0 A$), the waves observed are practically sine-shaped waves of small amplitude. The fraction of higher-frequency harmonics grows on approach. Later, the fraction of high-frequency harmonics becomes smaller again, while the amplitude goes on growing. On withdrawal, it is the other way round. The third case is, in a sense, the contrary of the second. The sound source moves along with the liquid, the observer being in the coordinate system at rest. The Riemann solution has the form

$$v = F\left(\frac{x - Vt}{\pm c_0 + \epsilon v}\right). \quad (9).$$

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In the case of a harmonic sound source, the solutions of first and second approximation have the forms

$$v_1 = A \sin(\omega t - k_0 x), \quad \omega = \omega_0 (1 \pm \beta), \quad k_0 = \frac{\omega}{c_0 + V}, \quad (10).$$

$$v_2 = \frac{A^2 \omega_0^2}{2c_0^3} (x - Vt) \sin 2(\omega t - k_0 x).$$

There is 1 Soviet-bloc reference.

ASSOCIATION: Akusticheskiy institut Akademii nauk SSSR (Institute of Acoustics, Academy of Sciences USSR)

PRESENTED: December 22, 1960, by N. N. Andreyev, Academician

SUBMITTED: December 20, 1960

Card 4/4

POLYAKOVA, A. L.

Propagation of finite-amplitude waves in relaxing media. Akust.
zhur. 6 no.3:356-359 '60. (MIRA 13:9)

1. Akusticheskiy institut AN SSSR, Moskva.
(Sound waves)

FD-2204

POLYAKOVA A. L.

USSR/Nuclear Physics - Nuclear magnetic moments

Card 1/1 Pub. 146-9/25

Author : Gvozdover, S. D.; Pomerantsev, N. M.; Polyakova, A. L.

Title : Determination of the time of transverse relaxation of nuclear magnetic moments

Periodical : Zhur. eksp. i teor. fiz. 28, 584-588, May 1955

Abstract : The authors propose a new method for determining the time of transverse relaxation from the form of the signals of magnetic resonance of atomic nuclei. By employing this method they can simultaneously measure the effective inhomogeneity of the magnetic field in the body of a specimen. Experimental verification indicates the convenience of this method and the agreement with the results of other authors using other methods. Seven references: e.g. S. D. Gvozdover and N. M. Pomerantsev, Vestnik MGU, 1953; R. Wangsness and B. Jacobson, Phys. Rev., 73, 942, 1948.

Institution : Moscow State University (MGU)

Submitted : May 8, 1954

1ST AND 2ND OBJECTS										PROCESSES AND PROPERTIES INDEX										100 AND 1000 INDEX									
<p>Alkaloids of the leaves of Jaborandi. Synthesis of pilocarpidine. N. A. Preobrazhenskii, A. M. Polyakova, and V. A. Preobrazhenskii. <i>Compt. rend. acad. sci. U.S.S.R.</i> [N. S.], 3, 207-9 (1935) cf. <i>C. A.</i> 29, 4740. The synthesis of <i>d</i>-homopilocarpic acid (I) is complicated by spatial rearrangement during the procedure. Accordingly, the diazo ketone from <i>d</i>-pilocarpic acid (II) was converted into I by the method of Arndt and Eistert (<i>C. A.</i> 29, 3323). A mixt. of 1.5 g. of II, m. 121.2-2.2°, [α]_D²⁰ 29, 3323. A mixt. of SOCl₂ was heated for 5 hrs. at 54-60°, and an excess of chloroanhydride was dissolved in Et₂O and added to an Et₂O soln. of CH₃N₃ prepd. from 10 cc. of Et₂O, CN(NO)Me. The cooled mixt. pptd. an alc. most quant. yield of yellowish crystals of diazomethyl <i>d</i>-pilocarpyl ketone (III), m. 100-8°. A soln. of 0.97 g. of III in 100 cc. of H₂O at 50° was added dropwise to a mixt. of 1.03 g. of Na₂S₂O₃ and 0.68 g. of Ag₂O in 35 cc. of H₂O. Extn. of the reaction mixt. gave 0.78 g. of I, C₁₁H₁₇O₄, which was converted into a chloromethyl <i>d</i>-homopilocarpyl ketone, m. 88.5-9.2° identical with a similar deriv. from I obtained from natural sources. C. R. Addinall</p>																													
<p>ASB-55A METALLURGICAL LITERATURE CLASSIFICATION</p>																													
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Alkaloids of labradori leaves. X. Synthesis and isomerization of *dl*-pilocarpine. N. A. Probovashenski, A. M. Polyakova and V. A. Probovashenskii. *Ber. 60B*, 1837-7 (1966); cf. C. A. 60, 5585. In the synthesis of *dl*-pilocarpine (I), rearrangements into the iso derivative were often observed; only by maintaining certain mild conditions, carefully avoiding increases in alkyl, beyond a certain limit, and cutting down the reaction time as much as possible can the isomerization be avoided. Diazo-methyl *dl*-pilocypyl ketone, prep'd. like the *d*-compd., faintly yellowish, m. 113-13.5° (85% yield). *l*-Isomer, faintly yellowish, m. 105-7° (78% yield). *Et dl*-homopilocypate (84% from the diazo ketone in abs. alc. with AgOH), b.p. 110-18°, d₄²⁰ 1.1090, n_D²⁰ 1.4568. *d*-Isomer (83.3% from the *d*-ketone), b.p. 108-8°, b.w. 110-18° (2nd pressure should probably be 0.5 mm.—Abstr.), d₄²⁰ 1.1101, n_D²⁰ 1.4569, [α]_D²⁰ 04.20° in (CHCl₃). *l*-Isomer, b.p. 115-17°, d₄²⁰ 1.1111, n_D²⁰ 1.4614, [α]_D²⁰ in (CHCl₃), -94.33° decreasing on the following day to [α]_D²⁰ -84.17°. *dl*-Acid, from the ester with 1:2 HCl (94% yield), m. 106-7°; its chloride with CH₃N₃ in cold ether gives 88.7% diazomethyl *dl*-homopilocypyl ketone, m. 90-2°. *d*-Isomer, faintly yellow, m. 80-1°. Chloromethyl *dl*-homopilocypyl ketone, from the diazo ketone with dry HCl in cold ether, m. 84-4.5°. *l*-Isomer, m. 82.5-3.5°, [α]_D²⁰ -102.06° in (CHCl₃). Phthalimidomethyl *dl*-homopilocypyl ketone (62% from the Cl ketone with C₆H₅-(CO)₂NH in abs. alc.), m. 142.5-3°. Amino-methyl ketone-HCl (67.0% from the phthalimido compd. boiled in 1:1 HCl), m. 103-4°. The amino compd. heated on the water bath with KSCN in water gives 72% *dl*-pilocarpidine-2-thiol, m. 203-4°, oxidized in water to *dl*-pilocarpidine, m. 128-9°, which is converted by means of MeI into *l*-carpine nitrate, m. 139-40°, is isomerized to *dl*-isopilocarpine nitrate, m. 134-5° (mixed m. p. with original nitrate, 105-10°) by heating 12 hrs. with Na in abs. alc.; yield, almost quant.

C. A. R.

ASM-3LA METALLURGICAL LITERATURE CLASSIFICATION

Elektronno-mikroskopicheskoye issledovaniye
strukturnykh zadaniy i otprushchennykh stali

AID 351 - I

Facilities: None

No of Russian and Slavic References: 7 Russian (1940-1949)

Available: Library of Congress

11-F

on ascorbic acid content in the same species differed from organ to organ. The av. content of ascorbic acid in various organs of the untreated controls (11 female used) expressed in mg. % of the organ in question of the lesser marmoset were as follows: ovaries 120.6, body of the uterus 44.3, horn of the uterus 60.6, thyroid gland 161.6, adrenals 187.8, and liver 27.3. The corresponding values for rats in mg. % of various organs from untreated animals were (8 females used): ovaries 79.8, body of the uterus 52.8, horn of the uterus 28.6, thyroid 75.0, adrenals 345.2, and liver 21.9. In marmosets values for ascorbic acid for various organs after injection of folliculin and expressed in percentage of the controls were obtained: ovaries 47.4, body of the uterus 95.2, horn of the uterus 35.7, thyroid gland 54.1, adrenals 54.7, and liver 83.8. For rats injected with folliculin the corresponding values were: ovaries 40.9, body of the uterus 30.1, horn of the uterus 54.8, thyroid gland 50.1, adrenals 60.0, and liver 62.9. Mosonyi (C.A. 30, 8350*) had previously found that follicular hormone decreased the ascorbic acid in the adrenals and liver of guinea pigs from 30 to 40%. Ascorbic acid was detd. by titration with 2,6-dichlorophenol-indophenol as used by Harris and Ray (C.A. 27, 4379) who used the method of Tillmans, Hirsch, and Jackisch (C.A. 26, 5619).

Nellie M. Payne

1ST AND 2ND CIPHERS		PROCESS AND PROPERTY INDEX		3RD AND 4TH CIPHERS	
<p>Tularemia and vitamin C. I. Effect of C-avitaminosis on susceptibility to tularemia. A. G. Kratinov, A. M. Polyakova, N. S. Reshetnikova, and A. T. Shkirina. <i>Zhur. Mikrobiol., Epidemiol. Immunobiol.</i> 1966, No. 11, 20-4. Guinea pig expts. showed that C-avitaminosis lowers the animal resistance to tularemia infection. Three diets were fed to different groups of animals: (1) complete food ration with abundance of vitamin C both before and after the exptl. infection, (2) scorbutogenic diet (oats and twice-autoclaved carrots) after a preliminary normal feeding (infection was introduced when definite symptoms of scurvy were present), (3) scorbutogenic diet throughout the exptl. period, without infection. The dose of <i>H. tularensis</i> used was sublethal so that the control animals survived in all cases, but all of the scorbutic animals died within 7-19 days of the infection, in expts. in which 15 days of scorbutogenic diet was sufficient to bring on pronounced C-avitaminosis. II. Influence of tularemia on the ascorbic acid balance in organs of rodents. A. G. Kratinov, E. A. Torkina, V. V. Morina and N. S. Reshetnikova. <i>Ibid.</i> 25-32. In guinea pigs tularemia caused the following drops in ascorbic acid (percentage of normal): suprarenals 67-85, lungs 43-78, lymphatic nodes 24-78, spleen 62-74, ovary 55-68, testes 65, pancreas 25-44. An increase occurred in: kidneys 32-180, thymus 39-409, and thyroid gland 68. In gray rats the decreases were: suprarenals 73, spleen 46, liver 23, lungs 37; increases were observed in kidneys 6, thigh skeletal muscle 74.5. <i>Microtus socialis</i> gave the decreases: suprarenals 63,</p>					
<p>spleen 45, lungs 22, kidneys 4; increases in: liver 1, thigh muscle 18. <i>Citellus pygmaeus</i> gave the decreases: suprarenals 47, spleen 47, liver 13, lungs 41; increases were: thymus 175, kidneys 30, heart 51, thigh muscle 253. All detns. were made on animals after tularemia death. Guinea pigs which do not synthesize ascorbic acid showed the greatest loss of ascorbic acid in the affected organs. In all animals the greatest loss occurred in organs most disturbed by pathol. changes. Thus in tularemia one deals with a localized toxic C-hypovitaminosis. The order of C-deficiency in various organs of the animals under study was comparable to that obtained under scorbutic conditions. G. M. K.</p>					
<p>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>					

POLYAKOVA, A.M.

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 351 - I

BOOK

Call No.: TN672.V8

Author: POLYAKOVA, A.M., LERINMAN, R.M., and SADOVSKIY, V.D.

Full Title: STUDY OF STRUCTURE OF TEMPERED AND ANNEALED STEEL WITH
THE ELECTRONIC MICROSCOPE

Transliterated Title: Elektronno-mikroskopicheskoye issledovaniye
strukturny zadalennoy i otpushchenoy stali

Publishing Data

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Society of Machine Builders. Ural's Branch

Publishing House: State Scientific and Technical Publishing House
of Machine Building Literature (Mashgiz)

Date: 1950

No. of pp. 7

No. of Copies: 3,000

Text Data

This is an article from the book: VSESOYUZNOYE MACHINNOYE INZHENERNO-
TEKHNIЧЕСКОЕ ОБЩЕСТВО МАШИНОСТРОИТЕЛЕЙ. URAL'SKOYE OTDELENIYE,
THERMAL TREATMENT OF METALS - Symposium of Conference (Termicheskaya
obrabotka metallov, materialy konferentsii) (p. 205-211) see AID 223-II

Coverage: The modification of microstructures of various steels sub-
jected to different thermal treatment is studied under a
metallographic electronic microscope.

Elektronno-mikroskopicheskoye issledovaniye
strukturny zadalenny i otpushchenoy stali

AID 351 - I

Specially prepared specimens of material in the form of thin film, metallic smoke, non-metallic impurities, and carbides separated from steels and other alloys were made by the electrolytic method. Highly-dispersed powders of metals and alloys (in size, a small fraction of a micron) were subjected to direct examination. However, the study of microstructure of steel specimens in the electronic microscope requires reproduction of the surface on the replica (mold). Single-stage replicas were made of oxides, lacquers, quartz and silica oxide, and double-stage replicas of polystyrol quartz plastics.

Carbon steel of the eutecoid composition (USA) and chromium-nickel steel of the type 40KhN4 were subjected to microscopic study after specific thermal treatment.

The action of alloying elements on the tempering of steel is explained by the variation of the temperature interval between the equivalent critical point A1 and temperature of the maximum velocity of disintegration, which is related to degree of overcooling at the point of minimum stability of austenite. Microphotographs.

Purpose: For scientific workers

Polyakova, A. M.

Next *2*
 Effect of residual austenite on the mechanical properties of spring steel strips. V. Ya. Zubov and A. M. Polyakova. Izv. Vsesoyuzn. Nauch. Issled. Inst. 1954, No. 4, p. 11-12. Zhur., Khim. 1955, No. 2640. The study was carried out on a steel contg. C 0.72, Si 1.52, Mn 0.46, Cr 0.37, S 0.016, and P 0.016%. The strip was hardened stepwise by heating at 830-50° and then cooled in a bath of 220° followed by annealing in a Pb bath. Stepwise annealing of Si steels resulted in 10-13% residual austenite which decomd. only upon long annealing at 400°. The residual austenite lowered the limit of elasticity both of hardened and annealed specimens. Decompos. of the residual austenite by annealing did not raise the limits of elasticity because the decomposition was attended by martensite transformation resulting in lowered elasticity. The mech. properties of annealed hardened strip are detd. by the processes taken place in the martensite. The tensile strength and elasticity of unannealed martensite were lower and then jumped sharply upon annealing at 300-400°. M. Horsch

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1047544, A.M.

Category : USSR/Solid State Physics - Mechanical properties of crystals and poly-crystalline compounds E-9

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1373

Author : Nosyreva, S.S., Polyakova, A.M.

Inst : Inst. of Metal Physics, Ural Branch, Academy of Sciences USSR

Title : On "Stone-Like " Fracture in Structural Steels

Orig Pub : Dokl. AN SSSR, 1955, 103, No 3, 431-432

Abstract : Radiography methods were used to investigate the influence of the speed of cooling on the magnitude and character of the distribution of sulfides in forged 37KhMZA steel. It is shown that the "stone-like" fracture in steel is obtained when the sulfides separate along the austenite grain boundaries.

Card : 1/1

POLYAKOVA, A.M.

SADOVSKIY, V.D., professor, doktor tekhnicheskikh nauk; MALYSHEV, K.A.,
kandidat tekhnicheskikh nauk; POLYAKOVA, A.M., inzhener; AVDEYEVA, V.D.,
inzhener; ARZAMASTSEV, I.G., inzhener; ISUPOV, V.P., inzhener

Story
Story fracture in structural alloyed steel. Stal' 15 no.6:545-548
Je '55. (MLRA 8:8)

1. Institut fiziki metallov Ural'skogo filiala Akademii nauk SSSR.
2. Metallurgicheskiy zavod imeni Serova.
(Steel, Structural--Testing)

Investigation of Stony Fracture by a Tracer Atom Method.
 S. S. Nosyren and A. M. Polyakova. (Sov. 1935, (12),
 1120-1123). In Russian. Radioactive sulphur ^{35}S was
 used to study the causes and characteristics of the stone-like
 fracture in structural steel which is produced by mechanical
 working at very high temperatures. It was found that in
 fractured specimens cooled slowly after overheating and then
 subjected to normal heat treatment, the sulphide inclusions
 exist either as large accumulations forming a discontinuous
 network at austenite grain boundaries or as smaller ones
 inside grains. In samples cooled rapidly after overheating,
 which do not give the fracture, the sulphides are distributed
 throughout the grain as small inclusions. Thus solution of
 sulphides during overheating followed by their separation
 at the grain boundaries is the probable cause of stone-like
 fracture.—S. K.

214E 2.c
 141 90
 141 26

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 LG Rmk

POLYAKOVA, A.M.

Projector for magnifying small objects. Priborostroenie no.2:32
F '56. (MLRA 9:8)

(Optical instruments)

137-58-2-3931

On the Kinetic of the (cont.)

austenite appeared in the fracture. Thus, AR under these conditions is effected between 1050 and 1100°. An increase in the holding time on secondary heating has a significant effect upon the position of the temperature at which rearrangement of coarse granular fracture occurs. Whereupon the AR temperature interval shifts in the direction of the lower temperatures. A diminution in the rate of heating induces an increase in the duration of holding required to complete AR.

M. Sh.

1. Steel—Phase transitions—Effects of hardening factors 2. Austenite—Temperature
2. Steel—Transformations

Card 2/2

SOV/137-57-11-22391

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 11, p 250 (USSR)

AUTHORS: Nosyreva, S. S., Polyakova, A. M.

TITLE: Use of Radioactive S^{35} to Study the Reasons for Lithoidal (Cleavage) Fracture in Structural Steels (Primeneniye radioaktivnogo izotopa sery S^{35} dlya izucheniya prichin vozniknoveniya kamnevidnogo izloma v konstruktsionnykh stalyakh)

PERIODICAL: Tr. In-ta fiz. metallov. Ural'skoy fil. AN SSSR, 1956, Nr 17.
pp 119-124

ABSTRACT: S^{35} , introduced into the steel on smelting, is employed for autoradiographic investigation of the reasons for lithoidal fracture (LF) of Nr 37KhNZA steel. In specimens revealing LF, the sulfides are found in heavy reticular accumulations along the grain boundaries of the austenite and as individual small inclusions within the grain. In the case of specimens not presenting LF, sulfides are distributed throughout the entire austenite grain. The conclusion is drawn that one of the decisive reasons for the appearance of LF is the process of dissolution of sulfides on heating and of precipitation out of solid solution along the grain boundaries of the austenite upon cooling.

A. Z.

Card 1/1

POLYAKOVA, A.M.; KORSHAK, V.V.; VDOVIN, V.M.; TAMBOVTSEVA, Ye.S.

Polymerization of cyano-containing organosilicon compounds.
Dokl. AN SSSR 141 no. 3:641-644 N '61. (MIRA 14:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i
Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
2. Chlen-korrespondent AN SSSR (for Korshak).

(Silicon organic compounds)

(Cyano group)

(Polymerization)

36236

S/190/62/004/004/002/019
B119/B138

5.3200

11.1340

AUTHORS:

Polyakova, A. M., Korshak, V. V., Suchkova, M. D.

TITLE:

Study of polymerization of acetylene compounds under pressure. II. Polymerization of propargyl alcohol

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 4, 1962, 486-491

TEXT: Polymerization was studied under varying reaction conditions (pressure: 1 and 1500-6000 atm; at 50 - 200°C; reaction time 1 - 30 hr; with and without addition of various conventional initiators). The infrared and epr spectra of the reaction products were taken. Thermomechanical and elementary analyses of the polymers were made. Results: products varied from liquid, soluble (after reprecipitation, powdery) to solid, unsoluble (molecular weight 387-1500) depending on pressure and temperature. Below 80°C no polymerization took place, even in the presence of initiators at high pressures. The effect of initiators on polymerization was negligible. Polymerization took place on the basis of a rupture of the $C\equiv C$ bond of propargyl alcohol;

Card 1/2

X

Study of polymerization of acetylene ... S/190/62/004/004/002/019
B119/B138

macromolecules with conjugated double bonds in the chains were formed. With a prolonged reaction time, at higher temperatures and pressures macromolecules were cross-linked with participation of OH groups. There are 2 figures and 4 tables. The most important English-language reference is: A. L. Henne, K. W. Greenlee, J. Amer. Chem. Soc., 67, 464, 1945.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: February 9, 1961

Card 2/2

X

POLYAKOVA, A.M., SUCHKOVA, M.D., VDOVIN, V.M., NAMETKIN, N.S.,
PRINTULA, N.A.

Silicon-organic compound with alternating siloxane and
carbon elements.

Report presented at the 12th Conference on high molecular weight compounds
devoted to monomers, Baku, 3-7 April 62

POLYAKOVA, A.M.; KORSHAK, V.V.; SUCHKOVA, M.D.

Polymerization of acetylene compounds under pressure. Part 2:
Polymerization of propargyl alcohol. Vysokom.soed. 4 no.4:486-
491 Ap '62. (MIRA 15:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Propynol)
(Polymerization)

S/190/63/005/003/010/024
B101/B186

AUTHORS: Polyakova, A. M., Sakharova, A. A., Chernyshev, Ye. A.,
Krasnova, T. L., Korshak, V. V., Petrov, A. D.

TITLE: Investigation into the polymerization of organometallic
styrene derivatives

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 3, 1963, 351-356

TEXT: Polymerization was made of $p-R_3M^{IV}C_6H_4CH=CH_2$, where $R = CH_3$ or C_2H_5 ,
 $M^{IV} = Si, Sn$ or Ge with or without pressure at $80^\circ C$ in the presence of azo-
isobutyric dinitrile. Results:

monomer	pressure atm	time hr	yield %	$[\eta]$ 100 ml/g
$(CH_3)_3SnC_6H_4CH=CH_2$	6000	6	72	5.15
ditto	1	10	68	0.97
$(C_2H_5)_3SnC_6H_4CH=CH_2$	6000	6	60	2.10
ditto	1	10	53	0.23
$(C_2H_5)_3GeC_6H_4CH=CH_2$	6000	6	~100	insoluble
ditto	1	10	77	0.74
$(C_2H_5)_3SiC_6H_4CH=CH_2$	6000	6	~100	insoluble
ditto	1	10	82	0.54

Card 1/2

S/190/63/005/003/010/024
B101/B186

Investigation into the polymerization...

The thermomechanical curves of all polymers synthesized without pressure are similar. The zinc-containing polymer synthesized under pressure differed from the other Si and Ge polymers, also synthesized under pressure, by a step in the thermomechanical curve between 150 and 300°C. p-triethylstannyl- α -methylstyrene polymerized under pressure behaves in the same way. This is due to the C-Sn bond which, compared with C-Si and C-Ge, is less stable. X-ray analysis showed that the silyl and germyl compounds have amorphous structure, the stannyl compound, however, has had a quasi-crystalline structure. The IR spectra of all compounds have no absorption bands of the vinyl group so that polymerization is due to the rupture of the C=C bond of the vinyl group. In crude state, all polymers are transparent, glassy substances or viscous masses, after reprecipitation from benzene or xylene they are colorless fibrous substances. There are 1 figure and 1 table.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR); Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy ASUSSR)

SUBMITTED: August 9, 1961
Card 2/2

FILIPENKO, V.G.; MIROSHNICHENKO, M.A.; POLYAKOVA, A.M.

Experimental study of epicutaneous live vaccines from plague strains EB and 1,17, Brucella strain 104-M, tularemia no. 15 Gaiskii restored strain and a selection of optimum antigen doses in it. Zhur. mikrobl. epid. i immun. 40 no.5:35-41 My '63. (MIRA 17:6)

1. Iz Stavropol'skogo protivochumnogo instituta Kavkaza i Zakavkaz'ya.

TARAN, I.F.; POLYAKOVA, A.M.; CHERNYSHEVA, M.I.

Characteristics of immunity following epicutaneous vaccination and revaccination with a vaccine of Br. abortus 104-M strain. Report No.1: Immunogenesis following epicutaneous application of the vaccine of Br. abortus 104-M strain in experiments on guinea pigs. Zhur. mikrobiol., epid. i immun. 40 no.3:21-25 Mr '63. (MIRA 17:2)

1. Iz Instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR i Protivochumnogo nauchno-issledovatel'skogo instituta Kavkaza i Zakavkaz'ya.

PILIPENKO, V.G.; AKINFIYEVA, Ye.G.; MIROSHNICHENKO, M.A.;
POLYAKOVA, A.M.

Epicutaneous immunization of persons with live polyvalent
vaccine against plague, tularemia and brucellosis. Zhur.
mikrobiol., epid. i immun. 40 no.2:57-61 F '63.

(MIRA 17:2)
1. Iz Protivochumnogo nauchno-issledovatel'skogo instituta
Kavkaza i Zakavkaz'ya, Stavropol'.

TARAN, I.F.; POLYAKOVA, A.M.; NELYAPIN, N.M.; LUNINA, Ye.A.

Characteristics of immunity in cutaneous vaccination and revaccination with vaccine from the Brucella abortus 104-M strain. Report No.2: Testing the intensity of immunity produced by vaccine from the Brucella abortus 104-M strain in an epicutaneous application in experiments on guinea pigs. Zhur. mikrobiol., epid. i immun. 40 no.6:128 Je '63. (MIRA 17:6)

1. Iz Nauchno-issledovatel'skogo protivochumnogo instituta Kazkaza i Zakavkaz'ya.

POLYAKOVA, A.M.; SAKHAROVA, A.A.; CHERNYSHEV, Ye.A.; KRASNOVA, T.L.;
KORSHAK, V.V.; PETROV, A.D.

Polymerization of metalloorganic derivatives of styrene. Vysokom.
soed. 5 no.3:353-356 Mr '63. (MIRA 16:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Institut
organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Styrene polymers) (Organometallic compounds)

TARAN, I.F.; NELYAPIN, N.M.; POLYAKOVA, A.M.

Characteristics of immunity in cutaneous vaccination and revaccination with vaccine from strain 104-M of Brucella abortus. Report No.3: State of immunity in multiple revaccination with vaccine from 104-M strain of Brucella abortus in experiments on guinea pigs. Zhur. mikrobiol. epid.i immun. 41 no.1:77-81 Ja '64. (MIRA 18:2)

1. Protivochumnyy institut Kavkaza i Zakavkaz'ya, Stavropol' krayevoy.

L 17641-65 EWT(m)/EPF(c)/EPR/EWP(j)/T PC-4/Pr-4/Ps-4 RPL/ASD(a)-5/AS(mp)-2/
SSD/ASD(m)-3/AEDC(a)/AFWL/AFETR/RAEM(c)/RAEM(e)/RAEM(i)/ESD(gs)/ESD(t) WW/JWD/RM
S/0204/64/004/005/0747/0752

ACCESSION NR: AP4047687

AUTHOR: Polyakova, A. M.; Suchkova, M. D.; Korshak, V. V.

TITLE: Polymerization of some acetylene derivatives B

SOURCE: Neftekhimiya, v. 4, no. 5, 1964, 747-752

TOPIC TAGS: acetylene, acetylene derivative, polymerization, acetylene polymer, acetylene derivative polymer, explosive polymerization, pressure effect, temperature effect, thermomechanical curve, polymer solubility, EPR, electron paramagnetic resonance

ABSTRACT: Polymerization of 1-hexyne, 2-methyl-5-ethynylpyridine, p-chlorophenyl-acetylene, and α -ethynylacetylene was studied, and the effect of pressure and temperature on the process of polymerization was demonstrated. The above mentioned monomers were selected in order to study the effect of substituents at the triple bond on the polymerization ability of the substituted acetylenes. It was found that the least active is 1-hexyne (the highest polymerization degree achieved -5), while 2-methyl-5-ethynylpyridine produced polymers with the polymerization degree up to 9; p-chlorophenylacetylene and, especially, α -naphthylacetylene are very active with an average polymerization coefficient equal to 15-17. In accordance

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L 17641-65

ACCESSION NR: AP4047687

3

with the high thermal effect observed in the polymerization of acetylene compounds, it was found that the monomers studied underwent an explosive polymerization, accompanied by carbonization, at definite temperatures and pressures which varied for each monomer. The minimum critical pressure depends on many factors, among them the diameter of the reaction vessel. The dependences of the polymer yields on temperature and pressure were established and are graphically presented in the article. The dependence on pressure has a maximum, and the dependence on temperature is represented by an S-shaped curve with a flat upper level. The thermomechanical curves of the polymers indicate that the polymers obtained were linear and had softening points in the range of 230—240C. The solubility of polymers decreases with the increase in the polymerization pressure. A prolonged heating in tetralin at 180C renders polymers soluble, which is to be explained by the loosening of the close packing of macromolecules caused by the high pressure. The EPR was observed in all polymers except those obtained from 1-hexyne. The polymers were either in the form of yellow or red oils, such as some obtained from 1-hexyne, or colored powders. Orig. art. has: 5 tables and 3 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

Card 2/3

L 17641-65

ACCESSION NR: AP4047687

SUBMITTED: 25Jul63

NO REF SOV: 005

ENCL: 00

OTHER: 007

0
SUB CODE: OC, GC

Card 3/3

L 22662-65 EPF(c)/EWP(j)/EWI(m)/T PC-4/Pr-4 RM/MLK
ACCESSION NR: AT5002115 S/0000/64/000/000/0091/0096

AUTHOR: Polyakova, A.M.; Suchkova, M.D.; Vdovin, V.M.

TITLE: Synthesis of organosilicon compounds with alternating siloxane (or silane) and carbon members

SOURCE: AN SSSR. Institut neftekhimicheskogo sinteza. Sintez i svoystva monomerov (The synthesis and properties of monomers). Moscow, Izd-vo Nauka, 1964, 91-96

TOPIC TAGS: silicoorganic compound, siloxane polymer, silane polymer, oligomer synthesis

ABSTRACT: A general method is proposed for the synthesis of organosilicon oligomers, the main chain of which consists of alternating hydrocarbon and siloxane fragments. The method involves the reaction of α , ω -dihydropolysiloxanes (and dihydrosilanes) with acetylene and non-conjugated diolefins in the presence of platinum catalysts. The structure of the oligomers was demonstrated with the aid of infrared absorption spectra, using the absorption bands of the valence oscillations of terminal H-Si ($2100-2150\text{ cm}^{-1}$) and C = C ($1595-1600\text{ cm}^{-1}$) bonds. In order to evaluate the structures containing terminal vinyl groups, use was also made of absorption bands of the asymmetric valence oscillations of

Card 1/2

L 22662-65

ACCESSION NR: AT5002115

the terminal $-\text{CH}_2-$ groups (3050 cm^{-1}). The presence of $-\text{CH}=\text{CH}_2-$ and $\text{H}-\text{Si}-$ groups in the molecules of the oligomers was also demonstrated chemically. Reactions on the terminal groups of the resulting oligomers ($\text{Si}-\text{H}$ and Si -alkene) and functional groups contained in the hydrocarbon chain ($=\text{N}-\text{H}$) resulted in solidification of the oligomers into trimeric products. Orig. art. has: 3 tables and 5 formulas.

ASSOCIATION: None

SUBMITTED: 30Jul64

NO REF SOV: 004

ENCL: 00

OTHER: 001

SUB CODE: OC, GC

Cord 2/2

TARAN, I.F.; NELYAPIN, N.M.; POLYAKOVA, A.M.; LUNINA, Ye.A.

Comparative study of the vaccinal process and the intensity of immunity in guinea pigs vaccinated with Brucella abortus 19 and 104-M. Zhur. mikrobiol., epid. i imm. 41 no. 2:53-60 F '64. (MIRA 17:9)

1. Protivochumnyy institut Kavkaza i Zakavkaz'ya, Stavropol' na Kavkaze.

POLYAKOVA, A.M.

Vaccination against brucellosis and method of selection of patients
by means of a single allergic test. Zhur.mikrobiol.epid.i immun.
no.8:63-66 Ag '54. (MLRA 7:9)

(BRUCELLOSIS, prevention and control,
vacc., selection of patients with allergic test)
(VACCINES AND VACCINATION,
brucellosis, selection of patients with allergic test)

FD-2600

POLYAKOVA, A.M.
USSR/Medicine - Tularemia, Brucellosis Immunology

Card 1/1 Pub. 148 - 11/25

Author : Pilipenko, V. G. and Polyakova, A. M.

Title : The problem of the possibility of simultaneous vaccination against tularemia and brucellosis. Report 1. Indexes of the immunobiological structure in guinea pigs inoculated simultaneously with tularemia and brucellosis vaccine by subcutaneous and combined methods

Periodical : Zhur. mikro. epid. i immun. 4, 52-57, Apr 1955

Abstract : A detailed description is given of experimental vaccination of guinea pigs with a combined live tularemia and brucellosis vaccine. The results of the experiments are presented on four charts. No references are cited.

Institution : Scientific-Research Institute of the Caucasus and Transcaucasus, Ministry of Health USSR (Director - V. N. Ter-Vartanov)

Submitted : May 6, 1954

Translation 107894

PILIPENKO, V.G.; POLYAKOVA, A.M.; SHCHEKINA, T.A.

Possibility of simultaneous vaccination against tularemia and brucellosis. Report no.3: Indexes of immunobiological changes in guinea pigs vaccinated simultaneously and intradermally with tularemia and brucellosis vaccines. *Zur.mikrobiol., epidem. i immun.* 27 no.3:79-83 Mr' 56. (MIRA 9:7)

1. Iz Stavropol'skogo nauchno-issledovatel'skogo instituta Ministerstva zdoravookhraneniya SSSR.

(TULAREMIA, immunology.

vacc., simultaneous intradermal vacc. against tularemia & brucellosis in guinea pigs (Rus))

(BRUCELLOSIS, immunology
same)

(VACCINES AND VACCINATION,

brucellosis & tularemia simultaneous intradermal vacc.
in guinea pigs (Rus))

Polyakova, AM

Polymerization of unsaturated organosilicon compounds under pressure. IV. Mono- and disilanes V. V. Korshak, A. M. Polyakova, A. A. Sakharova, A. D. Petrenko, V. P. Mironov, V. G. Glukhovtsev, and G. I. Nikishin (Inst. Khim. Fiz., Acad. Sci. U.S.S.R., Moscow). *Zhur. Obshchei Khim.* 27, 2445-9 (1957); cf. *C.A.* 49, 15727i; 50, 16705c; 51, 11928b. — It was shown that vinylsilanes which carry Et and MeO groups are more prone to polymerize than are their analogs with Me, Pr, and other radicals. The allyl derivs. are more readily polymerizable than are methyl analogs. The monomers were heated under 6000 atm. pressure at 120° with up to 3% (Me₂CO)₂ initiator. Polymers were formed from: Me₂SiCH=CH₂, Et₂SiCH=CH₂, Pr₂SiCH=CH₂, Bu₂SiCH=CH₂, Et₂SiCH₂CH=CH₂, Me₂SiCMe:CHMe, Me₂SiCMe:CHCH₂OCH₂CH₂CN, Me₂SiCMe:CHCH₂OH, 1-C₂H₅Si(CH₂CH=CH₂), 1-C₂H₅Si(OCH₂CH=CH₂), (MeO)₂SiCH=CH₂, (MeO)₂SiCH:CHCl, (MeO)₂SiCCH₂CH₂, Me₂SiCH(C₂H₅)CH₂Cl, CCl₃Si(CH₂CH=CH₂), PrHS(CH₂CMe:CH₂), iso-PrHS(CH₂CH=CH₂), BuHS(CH₂CH=CH₂), iso-BuHS(CH₂CH=CH₂), (CH₃)₂Si(CH₂CH=CH₂). Polymers were not formed from: EtMe₂SiCH:CMc, EtMe₂SiCH:CHMe, Me₂SiCMe:C-HMe at 1 atm. pressure, Me₂SiCHMeCH:CHMe, Et₂SiCMe:CHCH₂OCH₂CH₂CN, PrMe₂SiCH:CHPh, Me₂SiC-

(CH₂)Ph, Me₂SiC:CH(CH₂)₂, MeCH:C(SiMe₃), Me₂SiCH:CMcSiMe₃, Me₂SiCH:CHCHCH₂SiMe₃, Et₂SiOCH₂CH:CMcSiEt₃, and CCl₃SiCH:CH:CH₂ (etc).

Distr: 4E4j/4E3d/4E2c(j) G. M. Kosolapoff

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11
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KOTLYAROVA, Kh. S.; POLYAKOVA, A.M.; LUKASHOVA, L.V.

Principles of selection of vaccinal strains of Brucella. Vest. AMN
SSSR 14 no.2:42-49 '59. (MIRA 12:4)

1. Iz instituta epidemiologii i mikrobiologii imeni Gamalei AMN SSSR
(dir. - prof. S.N. Muromtsev) Nauchno-issledovatel'skogo instituta
Kavkaza i Zakavkaz'ya (dir. V.N. Ter-Vartanov), Leningradskogo Instituta
epidemiologii, mikrobiologii i gigiyeny imeni Pastera (dir. M.Ya. Nikitin).
(BRUCELLOSIS, immunol.
vacc. strains, principles of selection (Rus))

SOV/16-60-2-4/35

17(2,6)

AUTHORS:

Pilipenko, V.G., Miroshnichenko, M.A., Polyakova, A.M., Shchekina, T.A.

TITLE:

The Persistence of Immunity to Plague, Brucellosis and Tularemia in Guinea Pigs, Immunized With a Mixture of the Three Corresponding Vaccines by the Cutaneous Method

PERIODICAL:

Zhurnal mikrobiologii, epidemiologii i immunobiologii, 1960, Nr 2, pp 23 - 29 (USSR)

ABSTRACT:

The paper was first presented at an extended conference of the Armenian Anti-Plague Station on the "Prophylaxis of Highly-Dangerous Infections", held from October 8 - 10, 1958. After reviewing the references in the literature on the compound vaccination of animals against several infectious diseases, the author lists his own results on the study of the efficacy of the cutaneous method in immunizing guinea pigs with three vaccines (plague, tularemia and brucellosis). The local reactions pursued a much more benign course and ended sooner than in animals vaccinated subcutaneously. In no case an animal's general condition was disturbed. A check on the immunity 2 months after cutaneous vaccination showed that the animals were resistant to massive infectious doses of *Pasteurella pestis* and *Past. tularensis* and to 2 generalizing

Card 1/3

SOV/16-60-2-4/35

The Persistence of Immunity to Plague, Brucellosis and Tularemia in Guinea Pigs,
Immunized With a Mixture of the Three Corresponding Vaccines by the Cutaneous Method

doses of Brucella. There was no essential difference in guinea pigs immunized with the associated vaccine and animals which received mono-vaccine, as regards the number of animals immune to plague and tularemia; there were more animals immune to brucellosis among the guinea pigs immunized with associated vaccine. After 6 months the number of animals which had lost their immunity to massive doses of Past. pestis and Past. tularensis was twice as great in the group immunized with associated vaccine as in the group of animals which received mono-vaccine. This did not apply to immunity to brucellosis. The question as to whether this is a regular or only a random phenomenon requires further study. This disparity in the long-term effects of associated and mono-vaccines does not alter the merits of the cutaneous method

Card 2/3

SOV/16-60-2-4/35

The Persistence of Immunity to Plague, Brucellosis and Tularemia in Guinea Pigs,
Immunized With a Mixture of the Three Corresponding Vaccines by the Cutaneous Method

of associated vaccination as compared with the subcutaneous one.
There are: 6 tables and 17 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy protivochumnyy institut Kavkaza i Zakavkaz'ya,
Stavropol', (Plague Research Institute of the Caucasus and Trans-
caucasia, Stavropol')

SUBMITTED: February 14, 1959

Card 3/3

PILIPENKO, V.G.; MIROSHNICHENKO, M.A.; POLYAKOVA, A.M.; SHCHEKINA, T.A.

Problem of the duration of immunity to plague, tularemia and brucellosis in guinea pigs vaccinated subcutaneously with a mixture of the corresponding three vaccines. Zhur.mikrobiol. epid.i immun. 31 no.2:23-29 F '60. (MIRA 13:6)

1. Iz Nauchno-issledovatel'skogo protivochumnogo instituta Kavkaza i Zakavkaz'ya, Stavropol'.

(PLAGUE immunol.)

(TULAREMIA immunol.)

(BRUCELLOSIS immunol.)

L 63392-65 EWT(1)/EWA(j)/EWA(b)-2 JK

ACCESSION NR: AP5020097

UR/0016/65/000/908/0099/0104
615.371 : 576.851.42

AUTHOR: Taran, I. F.; Zamakhayeva, Ye. I.; Abakin, S. V.; Polyakova, A. M.;
Nelyapin, N. M.

TITLE: A study of brucella vaccine from the *Br. abortus* 104-M strain

SOURCE: Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 8, 1965, 99-104

TOPIC TAGS: brucella, vaccine, immunology, brucellosis

ABSTRACT: An experimental study on guinea pigs of the *Br. abortus* 104-M vaccinal strain showed that it possesses satisfactory immunogenic properties, viability, and capacity to induce active immunological reconstruction. Vaccine from *Br. abortus* 104-M proved to be harmless to sheep in doses of 8 to 10 billion microbial cells. It created stronger immunity than did *Br. abortus* 19. Sheep that received this vaccine had fewer abortions and gave birth to more healthy lambs than did the controls. Also, there was a sharp decrease in the incidence of brucellosis among those handling the animals. No side reactions were noted after subcutaneous inoculation with doses under 100 million microbial cells; doses ranging from 250 to 300 million

Card 1/2

L 83392-65

ACCESSION NR: AP5020097

cells produced severe general and local reactions. On the other hand, epicutaneous inoculation of doses ranging from 1 to 10 billion microbial cells were harmless and without side effects. Brucellosis incidence among vaccinated individuals was 2-4 times less than among non-vaccinated individuals. Orig. art. has: 2 tables. 2

ASSOCIATION: Nauchno-issledovatel'skiy protivochumnyy institut Kavkaza i Zakavkaz'ya (Scientific Research Plague Control Institute of the Caucasus and Trans-caucasus)

SUBMITTED: 01Jul64

ENCL: 00

SUB CODE: LS

NO REF SOV: 002

OTHER: 000

Card

2/2

POLYAKOVA, A.M.; KORSHAK, V.V.; LIPATNIKOV, N.A.

Polymerization of isopropenyl heterocyclic compounds. Part 2:
2-Isopropenylfuran. Vysokom.soed. 4 no.3:334-338 Mr '62.
(MIRA 15:3)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Furan) (Polymerization)

10

ca

Preparation of pilopylimidazole and its homologs. M. M. Katsnel'son, A. M. Polyakova, N. A. Preobrazhenskii and V. A. Preobrazhenskii. Russ. 47,248, June 30, 1954. Pilopykarbinal is treated with a soln. of Cu acetate and any aliphatic aldehyde in ammonia soln.; the free base is sepd. by means of H_2S .

ASD-51A DETAILORGRAPHIC LITERATURE CLASSIFICATION

ca 10

Pilocarpine and its homologs. M. M. Katsnel'son, A. M. Polzakova, N. A. Prokhorovskii and V. A. Prokhorovskii. *Russ. Chem. Rev.* 47, 693, July 31, 1978. α -Homopilocarpinal is treated with a soln. of $\text{Cu}(\text{OAc})_2$ and any aliphatic aldehyde in an NH_4OH soln. The free base is sep'd. by means of H_2S and the pilocarpine or its homologs are methylated in the usual manner.

ABSTRACT METALLURGICAL LITERATURE CLASSIFICATION

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

ca

10

Synthesis of pilocarpine alkaloids. N. A. Preobrazhenskii, A. M. Petrova and V. A. Preobrazhenskii. *Bull. acad. sci. U. R. S. S. Class sci. math. nat., Ser. chim.* 1956, 989-99 (in German 2005).—Exptl. details are given for the prepn. of various stereoisomeric pilocarpines and pilocarpidines through a series of intermediates. Two different syntheses from pilonic acid are carried out and a provisional method for the tech. syntheses of pilocarpine is advanced. From the sp. rotation of the derivs. of these series the spatial configurations of pilocarpine and isopilocarpine are proposed. C. R. Addinall

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

| 1ST AND 2ND COLUMNS | | PROCESSES AND PROPERTIES INDEX | |
|---|----|---|--|
| CA | 10 | 108°; its chloride, b.p. 126°, treated with CH_3N , gave diazomethyl homopilosinyl ketone (II); this, treated with glacial AcOH at 75°, afforded 84% acetoxymethyl homopilosinyl ketone, b.p. 168°; 4.49 g. of the ketone in 50 ml. H_2O is treated with 0 g. $\text{Cu}(\text{OAc})_2$, 1 ml. of 40% CH_3OH and 25% NH_4OH at 100° for 1 hr., the Cu is removed with H_2S and the excess H_2S with N , the acidified reaction mixt. is vacuum-distd. to expel HCl , the residue is extd. with H_2O , dissolved in the min. amt. of H_2O , alkaliized with NH_4OH , extd. with CHCl_3 , dried with Na_2SO_4 , and the CHCl_3 distd. off <i>in vacuo</i> , giving pilosinidine (HNO_3 salt, m. 117-18°); pilosinidine (1 g.) is treated with 2 ml. MeOH and 0.9 g. MeI in a sealed tube at 50-60° for 2 hrs., the excess of MeOH and MeI is distd. off <i>in vacuo</i> at 30-40°, the residue in 5 ml. H_2O is made strongly alk. with 10 ml. of satd. K_2CO_3 , the soln. is extd. with CHCl_3 and the CHCl_3 is expelled <i>in vacuo</i> at 25-30°, giving 70% I (nitrate, m. 138.5-60° (abs. alc.)). I is an oil, sol. in H_2O , alc., Me_2CO and poorly sol. in dry Et_2O . In the modified procedure II in dry ether is treated with gaseous HCl at 0° for 1 hr. and the ether vacuum-distd., giving 67% chloromethyl homopilosinyl ketone, b.p. 163°; 1.2 g. of the ketone in 10.5 ml. of abs. alc. and 1.45 g. $\text{Cell}(\text{CO})_2\text{NK}$ is refluxed 8 hrs. and the resulting phthalimide deriv. is decompd. with 20 ml. of 50% HCl by boiling 8 hrs., forming 90% aminomethyl homopilosinyl ketone (HCl salt, m. 140-3°); refluxing 0.95 g. of the ketone with 0.5 g. KSCN in 2 ml. H_2O for 8 hrs. yielded 74% pilosinidine-2-thiol, m. 202.5-3°; oxidation with FeCl_3 in H_2O gave pilosinidine. Chas. Blanc | |
| <p>Synthesis of the alkaloid pilosinine. A. M. Polyakov, V. A. Preobrazhenskii and N. A. Pechenkin. <i>J. Gen. Chem.</i> (U. S. S. R.) 9, 1402 (1939). Pyman (<i>C. A.</i> 7, 978) isolated from <i>Pilocarpus microphyllus</i> (C. A. 7, 978) the alkaloid pilosine (carpiline), $\text{C}_{11}\text{H}_{17}\text{O}_3\text{N}$, which when distd. with 20% KOH was decompd. into H_2N and an optically active base, named by him pilosinine (I) and identified as $\text{CH}_3\text{OOCCH}_2\text{CHCH}_2\text{C}(\text{CH}_3)_2\text{CH}_2\text{NMe}$. In the first synthesis of I here described Et succinate and HCO_2Et are with MeONa condensed at 20° to Et formylsuccinate; the free ester is reduced with Al-Hg and then distd. to give CO_2 and Et pilosinate, $\text{CH}_3\text{OOCCH}_2\text{CHCH}_2\text{CO}_2\text{Et}$, b.p. 154°, b. 273-5°; the latter on sapon. with dil. HCl gave the free acid, m. 64-5°, b.p. 203°; its chloride (prepd. by heating with <i>vacuo</i> SOCl_2 at 50-60° for 5 hrs.), b.p. 107°, when treated with 3 mols. CH_3N in Et_2O at 0° formed diazomethyl pilosinyl ketone, $\text{CH}_3\text{OOCCH}_2\text{CHCH}_2\text{COCHN}_2$; the reaction mixt. directly introduced into 87 ml. of abs. alc. contg. 2.00 g. Ag_2O and heated at 80° yielded 70.7% Et homopilosinate, $\text{CH}_3\text{OOCCH}_2\text{CHCH}_2\text{CO}_2\text{Et}$, b.p. 161°, n_D 1.456, M. R. 40.31; the free acid, m. 61.5-7.5°, b.</p> | | | |
| <p>Lab. of Alkaloids
Inst. Org. Chem., A.S. USSR</p> | | | |

POLYAKOVA, A. M.

"On the Synthesis of Hexamethylenediamine,"

No. 9-10, 1942. High Molecular

Compounds, Inst. Org. Chem., Acad. Sci. SSSR,

-1942-.

POLYAKOVA, A. M.

"A New Synthesis of Ethylparaconic (Pilopic)
Acids," Zhur. Obshch. Khim., 12, No. 5-6, 1942,
Inst. Org. Chem. Acad. Sci. SSSR, -1941-.

24

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The explosive decomposition of cyclopentadiene at high pressure. I. P. Vereshchagin and A. M. Polyakova (Lab. of Super Pressures, Inst. of Org. Chem., Acad. of Sci., U.S.S.R.). *Compt. rend. acad. sci. U.R.S.S.* 47, No. 3, 197-8 (1945); *Doklady Acad. Nauk. S.S.S.R.* 47, No. 3, 363-4 (1945).—The explosive decompn. of cyclopentadiene (I) under the influence of a wave produced by explosion of 1.1 g. of tetryl was investigated. It was found that 1,3-cyclohexadiene detonated under similar conditions. Decompn. was not complete with samples larger than 5 cc. because of rapid damping of the detonation wave in the liquid. The work of Raistrick, Sapiro, and Newitt (*C.A.* 34, 1231) on the explosive decompn. of I under static pressure was repeated with neg. results possibly because of a small amt. of the dimer. It was found that there is a crit. rate of pressure increase (1500 atm./min.) below which the explosive decompn. does not take place. The explosion has an induction period of 5 sec. after the necessary crit. pressure has been reached. It is believed that the decompn. is thermal in nature. At high pressure the rate of polymerization is so great that the heat evolved is sufficient to produce explosion. The crit. rate of rise of pressure is evidently necessary to attain the temp. required for the rate of reaction to be sufficiently great.

H. G. McCann

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM DIVISION

SEARCHED MAY ONLY ONE

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STATION ONE ONLY 151

PA 29/49T3

POLYAKOVA, A. M.

USSR/Chemistry - Hydrolysis

Feb 49

Chemistry - Piperazine, Diketo, Hydrolysis of

"Influence of Pressure on the Hydrolysis of 2,5-Diketopiperazine and the Development of Polypeptide Bonds," A. M. Polyakova, L. F. Vereshchagin, Lab Ultrahigh Pressures, Inst Org Chem, Acad Sci USSR, 2 pp

"Dok Ak Nauk SSSR" Vol LXIV, No 5

Determined that pressure sharply increases the speed of hydrolysis of diketopiperazine. Submitted by Acad W. D. Zelinskiy, 18 Dec 48.

29/49T3

POLYAKOVA, A. H.

(5)

Effect of pressure on the reaction of polycondensation of
glycine methyl ester. A. M. Polyakova, L. E. Yeresheva,
gim, A. A. Sakharova, and E. S. Tarnobitskaya (Inst. Org.
Chem., Acad. Sci. U.S.S.R., Moscow). Izv. Akad.

Nauk. S.S.S.R., Otdel. Khim. Nauk 1954, 142-8; cf. *C.A.* 43, 5403i. $\text{H}_2\text{NCH}_2\text{CO}_2\text{Me}$ was subjected to polycondensation by heating 6 hrs. under pressure in a vessel provided with sliding pistons; the material remained under pressure a total of 42 hrs. in each expt. The expts. made at 4500 atm. at 50°, 75°, and 130° showed that the pressure definitely increases the rate of polycondensation and its extent; the polymer obtained at 50° had av. mol. wt. 4368, that at 75° 3855, that at 130° 3284, but the yields were, resp., 10.6, 13, and 18.9%. At atm. pressure the products are polypeptides, insol. in H_2O . The products formed under pressure contain 0.7-0.95% MeO groups; detn. of amino N indicates that diketopiperazine rings are not formed and the products are probably linear.

G. M. Kosolapoff

ml

POLYAKOVA, A. M.

USSR/Chemistry - Polymerization

Card 1/1 Pub. 22 - 31/56

Authors : Petrov, A. D.; Korshak, V. V., Memb. Correspondents of Ac. of Sc. USSR.;
Polyakova, A. M.; Sakharova, A. A.; Mironov, V. F.; and Nikishin, G. I.

Title : High-pressure polymerization of mono- and polyalkenylsilanes

Periodical : Dok. AN SSSR 99/5, 785-788, Dec 11, 1954

Abstract : Nineteen silico-olefines of different structure were subjected to polymerization by heating to 130° in the presence of tertiary butyl peroxide and 5500 atm pressure. The results show that under such rigid conditions the polymerizability of various alkenyl silanes and the nature of the polymers derived vary to a large extent. The reactivity of alkenyl silanes is determined by the structure of the latter and the orientation of the multiple bond relative to the Si-atom. The products, obtained through high-pressure polymerization of alkenyl silanes, are tabulated. Seven references: 5-USSR 1-USA and 1-English (1937-1953). Table; drawing

Institution: Academy of Sciences USSR, Institute of Organic Chemistry and Institute of Elementary Organic Compounds

Submitted : June 29, 1954

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Polymerization and copolymerization of alkenylsilanes under high pressure. III. A. M. Polyakova, V. V. Korshak, A. A. Sakharova, A. D. Petrov, V. F. Mironov, and G. I. Nikishin (Inst. Heteroorg. Compds. Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 979-85; cf. C.A. 49, 15727i. — Polymerization and copolymerization of alkenylsilanes was performed in the presence of 3% (Me₂CO)₂ at 130° at 5500 atm. The following monomers gave viscous/liquid polymers: Et₃SiCH=CH₂, Et₂SiCMe=CH₂, Et₂SiCH=CHMe, Et₂SiCH=CMe₂, Me₂SiCMe=CH₂, (CH₃)₂SiEt=CH₂, (Me₂Si)₂C=CH₂, (CH₃)₂Si(CH₂CH=CH₂)₂, Me₂SiCH₂CH=CH₂, Me₂SiCH=CHCH₂CH₃, Cl₂SiCH₂CH=CH₂, Me₂SiCH₂CH=CHMe, Me₂SiCH₂CH=CHPh, Me₂SiCH₂CH=CHCH₂CH₃, (EtO)₂SiCH₂CH=CH₂, Et₂Si(CH₂CH=CH₂)₂ (solid polymer formed), Me₂Si(CH₂CH=CH₂)₂ (solid polymer formed), Et₂SiH(CH₂CH=CH₂)₂, MeSiH(CH₂CH=CH₂)₂ (solid polymer), MePhSi(CH₂CH=CH₂)₂ (solid polymer), Ph₂Si(CH₂CH=CH₂)₂ (solid polymer), Me(1-C₆H₅)₂Si(CH₂CH=CH₂)₂, PrSiH(CH₂CH=CH₂)₂ (solid polymer), Me₂Si(CH₂CH=CH₂)₂ (solid polymer), MeSi(CH₂CH=CH₂)₂ (solid polymer), Si(CH₂CH=CH₂)₂ (solid polymer), Si(CH₂CH=CH₂)₂ (solid polymer), Si(CH₂CH=CH₂)₂ (solid polymer). The following monomers failed to polymerize: Me₂SiCH=CHMe, Me₂SiCH=CMe, Et₂SiCH=CHCl, Me₂SiCH=CHCl, Me₂Si(CH₂CH=CH₂)₂, Et₂SiCHMeCH=CH₂, R₂Si(OR)₂ (R₂ = cyclopentadienyl). Viscous polymers were obtained from: Et₂SiCH₂CH=CH₂CH₂CH₃, Me₂SiCH₂CH=CH₂CH₂CH₃, Et₂MeSiCH₂CH=CH₂CH₂CH₃, Et₂SiCHMeCH=CH₂CH₂CH₃ (only at 5500

Polyakova, I. I., Koeshal, W. ...
 (atm. pressure), $\text{Me}_2\text{SiCH}_2\text{CH}_2\text{CMe}:\text{CH}_2$, $\text{Et}_2\text{SiCH}_2\text{CHMe}:\text{CH}:\text{CHMe}$, $\text{Pr}_2\text{SiCH}_2\text{CHMeCH}_2\text{CH}:\text{CH}_2$, $\text{Bu}_2\text{SiCH}_2\text{CHMeCH}_2\text{CH}:\text{CH}_2$, $\text{Me}_2\text{SiCH}_2\text{CH}_2\text{CH}_2\text{CH}:\text{CH}_2$, and R_2SiMe_2 (R , as above). Copolymers with $\text{CH}_2:\text{CMeCO}_2\text{Me}$ were prepd. with $\text{PhMe}_2\text{SiCH}_2\text{CH}:\text{CH}_2$, $\text{PhMeSi}(\text{CH}_2\text{CH}:\text{CH}_2)_2$, $\text{Me}_2\text{Si}(\text{CH}_2\text{CH}:\text{CH}_2)_2$, $\text{Me}_2\text{Si}(\text{CH}_2\text{CMe}:\text{CH}_2)_2$, the products being generally hard solids. Mol. wts. and physicochem. properties of the copolymers are tabulated. Polymers of dialkenylsilanes were generally tridimensional structures which do not soften up to 400° . The methacrylate copolymers display a transition temp. forming highly elastic materials, which at higher temp. form flowing fluids.
 G. M. Kosolapoff

2/2

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POLYMERIZATION
KORSHAK, V.V.; POLYAKOVA, A.M.; PETROV, A.D.; MIRONOV, V.F.

Polymerization of unsaturated germanium organic compounds.

Dokl. AN SSSR 112 no.3:436-438 Ja '57.

(MLBA 10:4)

1. Chlen-korrespondent AN SSSR (for Korshak, Petrov, Mironov)
2. Institut elementoorganicheskikh soedineniy i Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR.
(Germanium organic compounds)
(Polymerization)

POLYAKOVA, A.M.

KORSHAK, V.V.; POLYAKOVA, A.M.; SAKHAROVA, A.A.; PETROV, A.D.; CHERNYSHEV, Ye.A.

Polymerization and copolymerization of unsaturated silicon organic compounds. Dokl. AN SSSR 119 no.2:282-284 Mr '58. (MIRA 11:5)

1. Institut elementoorganicheskikh soedineniy AN SSSR i Institut korrespondenty AN SSSR (for Korshak, Petrov).

(Styrene) (Polymerization) (Silicon organic compounds)

5(3)

SOV/62-59-1-36/32

AUTHORS:

Korshak, V. V., Polyakova, A. M., Mironov, V. P.,
Petrov, A. D.

TITLE:

Polymerization of Vinyl and Allyl Derivatives of Elements
of the IVth Group (Polimerizatsiya vinil- i allilproizvod-
nykh elementov IV gruppy)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 1, pp 178 - 180 (USSR)

ABSTRACT:

In the present communication the authors compared the
reactivity of unsaturated compounds of elements of the
IVth group in ion reactions and radical polymerization.
It was found that the reactivity of these compounds in-
creases in ion reactions in the order $C < Si < Ge < Sn$. The
inclination of the same compounds to radical polymerization
increases in the inverse order of $Sn < Ge < C < Si$ (Diagram).
Among the structurally similar elements of the IVth group
investigated alkenyl silanes incline most readily to poly-
merization. Thus, no deactivating effect is exercised by
the silicon atom in polymerization unlike in contrast to
carbon atoms in structurally similar olefins. Although tri-

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Polymerization of Vinyl and Allyl Derivatives of Elements SOV/62-52-1-36/38
of the IVth Group

alkyl-allylstannanes do not polymerize themselves, they are capable of forming polymers with methyl methacrylate (Table 2). Furthermore, copolymerization products of trimethyl-allyl-germanium were obtained with styrene. There are 1 figure, 2 tables, and 7 references, 6 of which are Soviet.

ASSOCIATION: Institut elemento-organicheskikh soedineniy (Institute of Elemental Organic Compounds) Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: June 25, 1958

Card 2/2

KORSHAK, V.V.; POLYAKOVA, A.M.; TAMBOVTSEVA, Ye.S.

Synthesis and polymerization of p-triethylplumbyl-~~α~~-methylstyrene.
Vysokom.sped. 1 no.7:1021-1023 J1 '59. (MIRA 12:11)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Styrene)

5(3)

AUTHORS:

Korshak, V. V., Polyakova, A. M.,
Tambovtseva, Ye. S.

SOV/62-59-4-31/42

TITLE:

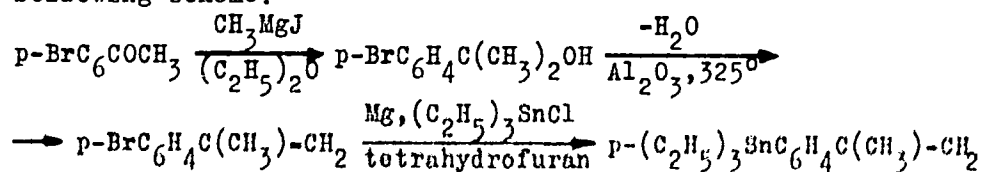
Polymerization of p-Triethyl-Stannyl- α -Methyl-Styrene (Polimerizatsiya p-trietilstannil- α -metilstirola)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 4, pp 742-744 (USSR)

ABSTRACT:

This is a brief report on the investigation of the polymerization of p-triethyl stannyl- α -methyl styrene by radical mechanism under 6,000 atmospheres pressure. p-Triethyl stannyl- α -methyl styrene was synthesized according to the following scheme:



The yield was ~50 %. Various initiators of the radical type were used in the investigation: azodinitrile of butyric acid (ADN), benzoyl peroxide, and tertiary butyl peroxide. The

Card 1/2

Polymerization of p-Triethyl-Stannyl- α -Methyl-Styrene SOV/62-59-4-31/42

results obtained are shown in the table. The best results were obtained when ADN was used. The thermodynamic curve (Fig) was determined for the samples obtained in the presence of this initiator. The curve of unsaturated methyl styrene obtained under similar conditions is shown in comparison. There are 1 figure, 1 table, and 7 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: August 4, 1958

Card 2/2

5(3)

AUTHORS: Korshak, V. V., Polyakova, A. M., Suchkova, M. D. SOV/62-59-6-26/36

TITLE: Polymerisation of Hexafluoro-1,3-butadiene
(Polimerizatsiya geksafтор-1,3-butadiyena)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1959, Nr 6, pp 1111 - 1115 (USSR)

ABSTRACT: By way of introduction a short survey is given of what is already known about $\text{CF}_2=\text{CF}=\text{CF}_2$ and about its capability of forming polymers (Refs 1-8). Since publications scarcely deal with these compounds, they were investigated by the authors, the conditions for their polymerisation and the properties of the polymers obtained were determined. Different initiators were used for polymerisation: $(\text{C}_2\text{H}_5\text{COO})_2^{(A)}$ at 50° , $[(\text{CH}_3)_3\text{CO}]_2^{(B)}$ at $90-130^\circ$ and 500-6000 atmospheres and $[(\text{CH}_3)_2\text{C}(\text{CN})\text{Al}_2]^{(C)}$ at 6000 atmospheres, triethylaluminum (D) and tributylboror (E). Suspension polymerisation was investigated in the presence of potassium persulphate (F). The three latter methods (D,E,F) failed. Tables

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Polymerisation of Hexafluoro-1,3-butadiene

SOV/62-59-6-26/36

1-5 give the investigation results obtained by using the different initiators. The initiator A proved to be most effective (yield 90% at 1.6 wt% A, pressure 6000 atmospheres, temperature 50°C). A yield of only 33% was obtained with the initiator B, and if no initiator was used at all, after long heating and a pressure of 6000 atmospheres only a yield of 18%. In some figures the influence of pressure (Fig 1) and temperature (Fig 2) upon the polymerisation rate, and the influence of the initiator (Fig 3), the pressure (Fig 4), and the temperature (Fig 5) upon the thermomechanical properties of the polymers produced is shown. The thermomechanical properties were determined by the apparatus by Tsvetlin (Ref 9). There are 5 figures, 5 tables, and 9 references, 1 of which is Soviet.

ASSOCIATION: Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR
(Institute of Elemental Organic Compounds of the Academy of Sciences, USSR)

SUBMITTED: September 3, 1957

Card 2/2

5(3)

AUTHORS: Korshak, V. V., Polyakova, A. M., Mironov, V. F., SOV/62-59-6-27/36
Petrov, A. D., Tembovtseva, V. S.

TITLE: On the Polymerization Mechanism of the Alkenylhydride Silanes
(O mekhanizme polimerizatsii alkenilgidridsilanov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959,
Nr 6, pp 1116 - 1125 (USSR)

ABSTRACT: The polymerization capability of monoalkenylhydride silane with the

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|
R-Si-R
|
R₁

general formula R-Si-R was investigated. In this formula

R = CH₃, C₂H₅, Cl, OC₂H₅; R₁ = CH₂-CH=CH₂, OCH₂-CH=CH₂ and CH₂-C(CH₃)=CH₂.

The peroxide of the tertiary butyl, and platinum on coal served as polymerizers. Like in the case of other investigations (Refs 2,3), polymers of the general formula (CH₃)₃Si(CH₂)_nSi(CH₃)₃ with n=1,2,3 (I) n=1 (II) n=2 (III) n=3 were found. The structure of the polymers obtained was determined by means of the infrared spectrum.

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On the Polymerization Mechanism of the Alkynylhydride Silanes SOV/62-59-6-27/36

The spectra were compared with the spectrum of the polymer produced from $(CH_3)_2H.SiCH_2-CH=CH_2$ by heating with platinum on coal (IV). L. A. Leytes and V. N. Smorchkov plotted and interpreted the spectra. The investigations of the infrared spectra showed that the allyldialkyl (aryl) silanes polymerize in a different way under formation of differently structured polymers in dependence on the polymerizer. In the presence of the butyl peroxide and at a pressure of 6000 atmospheres a macro molecule (A) was formed, in which the S-H bond is not split up. This conclusion is made because of the presence of the band (2100 cm^{-1}) characteristic of the S-H group, which is also to be found in the spectrum of the initial monomer and in the spectrum (IV). The other form of polymers (B) is produced in the presence on platinum on coal. They contain the band weakly mentioned either in a weak form or not at all, while the bands in the range of from $1050-1150\text{ cm}^{-1}$ are clearly determined. These polymers exhibit the following structure:

$$\begin{array}{c} R \\ | \\ -Si-CH_2-CH_2-CH_2-Si-CH_2-CH_2-CH_2- \\ | \quad \quad \quad | \\ R \quad \quad \quad R \end{array}$$

The polymers obtained are differently consistent substances, oily to solid, in dependence on the

Card 2/3

On the Polymerization Mechanism of the Alkenylhydride Silanes SOV/62-59-6-27/36

character of the radicals on the silicon atom. The data concerning the different polymers are given in table 1. In the experimental part the syntheses of the single polymers from the monomers concerning are described. Table 3 gives the physical constants of the initial monomers and figures 1-16 show the infrared spectra of the different polymers. There are 16 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR (Institute of Elemental Organic Compounds of the Academy of Sciences, USSR) and Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: September 3, 1977

Card 3/3

5(3)

SOV/62-59-8-21/42

AUTHORS: Korshak, V. V., Polyakova, A. M., Stoletova, I. M.

TITLE: Investigation of the Effect of Pressure on the Polymerization Capacity of α -Methylstyrenes Substituted in the Nucleus. Communication 1. Polymerization of p-Substituted α -Methylstyrenes Under Pressure

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, pp 1471-1476 (USSR)

ABSTRACT: In order to investigate the above mentioned p-substituted styrenes the following monomers were synthesized according to methods already mentioned in literature: p, α -dimethylstyrene, p-chloro- α -methylstyrene, p-bromo- α -methylstyrene. They cannot polymerize according to the radical mechanism but form copolymers (Refs 3, 4). The polymerization was carried out at a pressure of 6000 atm and 120° in 5 hours. The results are given in tables 1-4 and figures 1-9. From these results it follows that the p, α -methylstyrene which usually does not polymerize according to the radical mechanism is able to polymerize under extremely high pressures. When different pressures were applied it was found that all monomers investigated polymerize at 6000 atm without initiator and give a good yield. p-Chloro- α -methylstyrene has

Card 1/2

Investigation of the Effect of Pressure on the Polymerization Capacity of α -Methylstyrenes Substituted in the Nucleus, Communication 1. Polymerization of p-Substituted α -Methylstyrenes Under Pressure

SOV/62-59-8-21/42

the highest polymerization rate. At 4500 atm p-bromo-methylstyrene is slowest. It has the greatest spatial hindrance in its molecule compared to the other monomers. In the case of all three monomers the reaction rate increases with an increase of the pressure from 1 - 6000 atm. The molecular weight of the polymers increased as well. Furthermore, the polymers were investigated thermomechanically and it was found that the nature of the substituents in α -methylstyrene influences the thermomechanical properties of the polymer. The syntheses of the monomers are described. There are 1 figure, 1 table, and 14 references, 4 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds, Academy of Sciences, USSR)

SUBMITTED: October 10, 1957

Card 2/2

5(3)

SOV/62-59-8-22/42

AUTHORS: Korshak, V. V., Polyakova, A. M., Stoletova, I. M.

TITLE: Investigation of the Effect of Pressure on the Polymerization Capacity of α -Methylstyrenes Substituted in the Nucleus. Communication 2. Ortho-substituted α -Methylstyrenes

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 8, pp 1477-1479 (USSR)

ABSTRACT: The following compounds were investigated with respect to their capacity to polymerize under pressure: o, α -dimethylstyrene, o-chloro- α -methylstyrene, and 2,5-dichloro- α -methylstyrene. The second compound polymerizes neither according to the radical nor ion mechanism, nor can it be copolymerized. As in the case of p-substituted styrenes (Ref 1), the investigations were carried out at a pressure of 6000 atm and temperatures between 120 and 180°. The results showed that the said compounds could not polymerize according to the radical mechanism, while copolymerizes with styrene and p-chlorostyrene were obtained.

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Investigation of the Effect of Pressure on the SOV/62-59-8-22/42
Polymerization Capacity of α -Methylstyrenes Substituted in the Nucleus,
Communication 2. Ortho-substituted α -Methylstyrenes

The results are given in a table. The reason for the resistance to polymerization is considered to be the screening effect of the α -methyl group and the blocking effect of the o-substituent. The synthesis of the monomers is described in the experimental part. There are 1 figure, 1 table, and 5 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds, Academy of Sciences, USSR)

SUBMITTED: October 10, 1957

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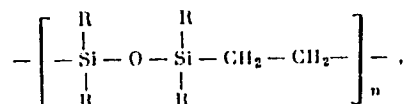
SOV/62-59-12-41/43

AUTHORS: Polyakova, A. M., Suchkova, M. D., Vdovin, V. M.,
Mironov, V. F., Korshak, V. V., Petrov, A. D.

TITLE: Concerning the Interaction of Acetylene With Siloxanes
and Silanes. Brief Communications

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, 1959, Nr 12, pp 2257-2259 (USSR)

ABSTRACT: Purified acetylene in reaction with disiloxanes
 $\text{HR}_2\text{SiOSiR}_2\text{H}$ (where $\text{R} = \text{CH}_3$ and C_2H_5) under atmospheric
pressure, in presence of chloroplatinic acid in iso-
propanol or platinum on carbon, gave polymers in the
form of thick oils. IR spectra and other analytical
data indicate that the macromolecules of these poly-
mers consist of units:



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Concerning the Interaction of Acetylene
With Siloxanes and Silanes. Brief
Communications

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where $n = 2$ to 14 . Physical and chemical constants of polymers obtained in 30.0 to 87.4% yield from tetramethyl-, dimethyldiethyl-, and tetraethyldisiloxanes are tabulated. In similar reactions, purified acetylene with methylphenylchlorosilane $(CH_3)C_6H_5SiClH$ under atmospheric pressure, in the presence of chloroplatinic acid in isopropanol, gave 1,2-bis-(phenylmethylchlorosilyl)ethane $Cl(CH_3)(C_6H_5)SiCH_2CH_2Si(C_6H_5)(CH_3)Cl$ in 88% yield. Reaction of acetylene with methyldichlorosilane CH_3SiCl_2H gave similarly 1,2-bis-(methyldichlorosilyl)ethane $Cl_2(CH_3)SiCH_2CH_2Si(CH_3)Cl_2$ in 9% yield; the balance consisted in the unreacted starting silane. Acetylene must be completely free of any impurities which could poison the catalyst. IR spectra were taken by N. A. Chumayevskiy. There is 1 table; and 7 references, 2 U.S., 1 Japanese, 4 Soviet. The U.S. references are: J. W. Curry, J. Amer.

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Concerning the Interaction of Acetylene
With Siloxanes and Silanes. Brief
Communications

77097
SOV/62-59-12-41/43

Chem. Soc., 78, 1636 (1956); J. L. Speier, D. B. Hook,
U.S. Pat. 2823218, 11-02-58.

ASSOCIATION: Institute of Elemento-Organic Compounds, Academy of
Sciences, USSR, and N. D. Zelinskiy Institute of
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elementoorganicheskikh sovedineniy Akademii nauk SSSR
i Institut organicheskoy khimii imeni N. D. Zelinskogo
Akademii nauk SSSR)

SUBMITTED: May 25, 1959

Card 3/3

5(3)

SOV/20-126-4-28/62

AUTHORS:

Korshak, V. V., Corresponding Member AS USSR; Polyakova, A. M.;
Sakharova, A. A.; Petrov, A. D., Corresponding Member AS USSR;
Chernyshev, Ye. A.

TITLE:

Polymerization of Vinylaromatic Organosilicon Compounds
(Polimerizatsiya vinilaromaticeskikh kremniyorganicheskikh
soyedineniy). The Derivatives of α -Methylstyrene (Proiz-
vodnyye α -metilstirola)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 4, pp 791-793
(USSR)

ABSTRACT:

The authors already examined the polymerizability of the
compounds mentioned in the title, containing silicium com-
bined to the carbon of the benzene ring. In doing so, they
produced glass like polymers and defined their properties.
The compounds mentioned in the title are described in the
present article in this regard, but they contain silicium
which is combined with the benzene ring through methyl groups.

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SOV/20-126-4-28/62

Polymerization of Vinylaromatic Organosilicon Compounds. The Derivatives of α -Methylstyrene

Polymerization was carried out under an excess pressure of 6000, in the presence of initiators of the radical type: azo-isobutyric-acid-dinitryl (ADN) and the tertiary butyl peroxide (TBP). A comparison of the polymerization results with ADN and TBP being present, showed that the polymer develops more quickly in the presence of ADN (concentration 0.3 mol-% at 80°) than it does when TBP is used at 130°. In the first case the molecular weight of the polymers is higher (Table 1). The values of the viscosity characteristic of the α -methylstyrene-polymer and silicium-substituted α -methylstyrenes decrease in the transition from the polymer $C_6H_5C=CH_2$ to the polymer $(C_2H_5)_3SiC_6H_4C=CH_2$ and to the other polymers $(C_2H_5)_3SiCH_2C_6H_4C=CH_2$ and $(C_2H_5)_3SiCH_2CH_2C_6H_4C=CH_2$.

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The thermomechanical properties of the polymers change in the same sequence (Fig 2).

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Polymerization of Vinylaromatic Organosilicon Compounds. The Derivatives of α -Methylstyrene

There are 2 figures, 1 table, and 2 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute for Elemental Organic Compounds of the Academy of Sciences, USSR). Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute for Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: April 5, 1959

Card 3/3

66173

SC7/20-128-5-27/67

~~5(2,3)~~ 5.3700(C)

AUTHORS: Korshak, V. V., Corresponding Member, AS USSR, Polyakova, A. M.,
Vdovin, V. M., Mironov, V. F., Petrov, A. D., Corresponding
Member, AS USSR

TITLE: On the Interaction of Tetraalkyldihydridedisiloxanes With Di-
functional Unsaturated Compounds

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 5,
pp 960 - 963 (USSR)

ABSTRACT: The disiloxanes mentioned in the title react with acetylene
under atmospheric pressure in the presence of small quantities
of a 0.1 m solution of chloroplatinic acid in isopropyl al-
cohol and form polymer products. In the paper under review
the authors investigate a similar reaction (see Diagrams). The
same catalyst was used. Polymers in the form of viscous oils
in a yield of up to 80% are formed due to the reaction of
equimolar quantities of the two components. A diagram shows
the structure of the links of these polymers according to the
infra-red absorption spectra and the elementary analysis. Table
1 shows the results obtained. Hence it appears that the ana-
lysis results are in good agreement with the results obtained

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On the Interaction of Tetraalkyldihydridedisiloxanes
With Difunctional Unsaturated Compounds

SOV/20-128-5-27/67

by calculation. The polymerization coefficient n does not exceed 15 and varies according to the components used. It decreases upon transition from tetramethyl disiloxane to dimethyldiethyl disiloxane and to tetraethyl disiloxane. The divinyl monomers are more active in this reaction than the diallyl monomers. Reaction is most vigorous with diethyldivinyl silane and almost as vigorous with diethyldivinyl germanium. Diethyldivinyl tin did not participate in the reaction. Diethyldivinyl lead disintegrated with lead separation (this synthesis was carried out by M. D. Suchkova). In conclusion, the fact is to be stressed that the initial substances mentioned in the title react and synthesize readily. There are 1 table, and 2 Soviet references.

ASSOCIATION: Institut elementoorganicheskikh soedineniy (Institute of Elemental-organic Compounds). Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: June 11, 1959
Card 2/2

4

POLYAKOVA, A. M.

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S/190/60/002/01/01/021
B004/B061

5.3700C

AUTHORS:

Korshak, V. V., Polyakova, A. M., Suchkova, M. D.

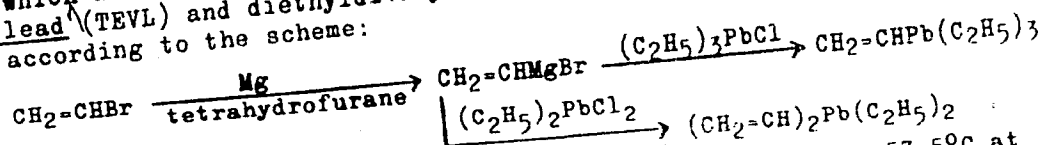
TITLE:

Synthesis of Vinyl Compounds and a Study of Their Polymerization ¹

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 1, pp. 13 - 19

TEXT: The authors succeeded in synthesizing the following compounds, which had previously not been described in publications: triethylvinyl lead (TEVL) and diethyldivinyl lead (DEDVL). The synthesis proceeded according to the scheme:



TEVL is a colorless liquid, with a boiling point of 57 - 57.5°C at

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Synthesis of Vinyl Compounds and a Study of
Their Polymerization

S/190/60/002/01/01/021
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8 torr, and it is stable up to 120°C. Complete decomposition with precipitation of lead occurs at 165°C. DEDVL is also a colorless liquid (boiling point 74 - 74.5°C at 13 torr), and it is not very stable. Azoisobutyric acid - dinitrile, tributylboron, tributylaluminum, tetraethyl lead, tert-butylperoxide and -hydroperoxide, and benzoylperoxide were used as initiators in the polymerization of these compounds. The results are given in Table 1. With tert-butylperoxide at 120°C and 6000 torr, TEVL gave 27.8% yellowish unstable oil with a molecular weight of 1100. The other initiators and lower temperatures did not lead to polymerization. Under the action of the peroxides at 120 - 130°C decomposition occurred, liberating lead. Attempts at copolymerization were carried out with 1) styrol, 2) α -methylstyrol, and 3) methylmethacrylate at 6000 atm. Experiment 3) was not successful. Experiments 1) and 2) gave polymers with 4.5 - 6% Pb. Table 2 gives the results. These polymers had lower melting points and viscosities than the corresponding homopolymers (Fig. 1). DEDVL was even less stable. Decomposition occurred on the reaction with disiloxane in the presence of H_2PtCl_6 or platinum on carbon (Table 3). Details of the reactions carried

Card 2/3

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86 299
S/190/60/002/008/013/017
B004/B054

AUTHORS: Korshak, V. V., Polyakova, A. M., Suchkova, M. D.

TITLE: Study of Polymerization of Acetylene Compounds Under Pressure. I. Polymerization of Phenyl Acetylene

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8, pp. 1246-1248

TEXT: The authors report on their attempts to polymerize phenyl acetylene. At normal pressure and 70-120°C, the yield in polymer was very low. At 1000 atm and 80°C, 12-13% of polymer was obtained after 6 hours in the presence of benzoyl peroxide or azoisobutyric acid dinitrile, 26.3% of polymer at 120°C, and full polymerization at 150°C. At 6000 atm, 39% of polymer with a molecular weight of 1170 was already formed after 1.5 hours at 110°C. At 120°C, the yield was 67%, but carbonization occurred in the case of fast temperature increase. The maximum polymerization coefficient was 10-12. The polymer was a yellow, brittle substance. The thermal curves were plotted with the aid of an apparatus designed by B. L. Tsetlin (Ref.5). The authors mention a paper by A. A. Berlin and L. A. Blyumenfel'd (Ref. 3).

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86299

Study of Polymerization of Acetylene Compounds S/190/60/002/008/013/017
Under Pressure. I. Polymerization of Phenyl B004/B054
Acetylene

There are 1 figure, 1 table, and 5 references: 2 Soviet, 1 US, 1 Belgian,
and 1 German.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental-organic Compounds of the AS USSR)

SUBMITTED: April 4, 1960

Card 2/2

5.3700C also 2109, 2209

83477
S/190/60/002/009/008/019
B004/B060

AUTHORS: Polyakova, A. M., Korshak, V. V., Suchkova, M. D.,
Vdovin, V. M., Chumayevskiy, N. A.

TITLE: Production and Structure Investigation of Polymers Contain-
ing Siloxane- and Hydrocarbon Links in the Principal Chain
of Macromolecules. IV.

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 9,
pp. 1360-1369

TEXT: The authors had previously studied (Refs. 1-3) the reaction of acetylene with dihydro tetraalkyl disiloxanes, and determined the structure of the polymers obtained on the strength of their infrared spectrum. In the present article, the authors report on the reaction of acetylene with dihydro siloxanes of varying molar ratios of the reagents. The reaction yields chain-like polymers with different terminal groups. The infrared spectra were examined for the absorption bands of the stretching vibrations of the -Si-H terminal group ($2100\text{-}2150\text{ cm}^{-1}$), of the C=C bond (vinyl group $1595\text{-}1600\text{ cm}^{-1}$, allyl group $1625\text{-}1635\text{ cm}^{-1}$), and the

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Production and Structure Investigation of S/190/60/002/009/008/019
Polymers Containing Siloxane- and Hydrocarbon B004/B060
Links in the Principal Chain of Macromolecules. IV

asymmetric stretching vibrations of the -CH_2 terminal group (3050 cm^{-1}).

The spectra shown in Fig. 1 reveal that the reaction of acetylene with excess dihydro siloxane yields a polymerization product (I) having

-Si-H terminal groups. In the case of an acetylene excess, however, polymer (II) forms with -CH=CH_2 as terminal groups. This could also be proven chemically. The oily polymerizate (II) was heated to 130°C at 6000 atm and at atmospheric pressure with tert-butyl peroxide. The product obtained was insoluble in all solvents. If (II) is caused to react with tetraalkyl dihydro disiloxane in the presence of $\text{H}_2\text{PtCl}_6 \cdot 6\text{H}_2\text{O}$, the chain is prolonged, and the resulting new polymerizate has -Si-H terminal groups. Similar reactions were carried out with acetylene and the polymers (III) described in Ref. 2 (with -Si-H as terminal group), and (IV) (with -CH=CH_2 as terminal group). The reaction of (III) with acetylene yielded a polymerization product with -CH=CH_2 as terminal group; the reaction of (IV) with tetraethyl dihydro disiloxane yielded a polymerizate with -Si-H as terminal

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